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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,424	03/25/2004	Ryoichi Kaku	119245	6949
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OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			EXAMINER PARK, EDWARD	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/808,424

Applicant(s)

KAKU ET AL.

Examiner

Edward Park

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on 07 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. This action is responsive to applicant's amendment and remarks received on 11/7/07.  
Claims 1-18 are currently pending.

### *Specification*

2. In response to applicant's amendment of the title, the previous title objection is withdrawn.

### *Claim Rejections - 35 USC § 101*

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.

... a signal does not fall within one of the four statutory classes of Sec. 101.

... signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

4. **Claims 10-18** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 10-18 are drawn to functional descriptive material recorded on a computer readable medium. Normally, the claim would be statutory. However, the specification, at page 6, lines 1-10 defines the claimed computer readable medium as encompassing statutory media such as a “optical (CD or DVD)”, “a magnetic optical disc (MO)”, “a magnetic disc”, “a hard disc”, “a magnetic tape”, “a memory (ROM)”, etc., as well as **non-statutory** subject matter such as a “information storage medium possessed by the host device (or server) through a network and the communication section 196 into the information storage medium 180”.

“A transitory, propagating signal ... is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” (*In re Petrus A.C.M. Nuijten*; Fed Cir, 2006-1371, 9/20/2007).

Because the full scope of the claim as properly read in light of the disclosure encompasses non-statutory subject matter, the claim as a whole is non-statutory. The examiner suggests amending the claim to include the disclosed tangible computer readable media, while at the same time excluding the intangible media such as signals, carrier waves, information storage medium possessed by the host device (or server) through a network and the communication section 196 into the information storage medium 180, which invokes a signal or carrier wave, etc. Any amendment to the claim should be commensurate with its corresponding disclosure.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukoyama et al (US 6,831,659 B1) in view of Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom").

Regarding **claim 1**, Mukoyama teaches an image generation method for generating an image, the method comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);  
disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);  
controlling a virtual camera (Mukoyama: col. 8, lines 5-27);  
disposing in the object space a model object including a plurality of part objects each of which has a projection shape, each of the part objects having a projecting portion formed on a display surface on which an image is drawn (Mukoyama: figure 15; col. 14, lines 35-65, each display element P is established on the tree object that has a vector v1 that is projected towards the point of view VP); and rotating each of the part objects based on rotational information of the virtual camera so that the display surface of each of the part objects is directed toward the virtual

camera (Mukoyama: figure 16). Mukoyama does not teach generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing.

Bothcy teaches generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing ("Billboarding": Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to "achieve high-speed processing" (Bothcy: pgs. 3-4).

Regarding **claim 10**, Mukoyama teaches a computer readable medium embedded with a program for generating an image, the program causing a computer to implement processing ("provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible"; Mukoyama: col. 2, lines 47-50) of the methods of claim 1 (the claim is rejected under the same combinations, teachings, and motivation as claim 1)

7. **Claims 2-9, 11-18** are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Mukoyama et al (US 6,831,659 B1) with Bothcy (C Magazine; "Speed-up Techniques and thinking Routine for 3D games found Source Code of a 3D game "Doom"") as applied to claim 1, and further in view of Nakagawa (US 2002/0135603 A1).

Regarding **claim 2**, Mukoyama with Bothcy combination discloses all elements as mentioned above in claim 1. Mukoyama with Bothcy combination does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; and mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit.

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]); and mapping on each of the part objects the Z texture for setting bump shapes on the display surface by pixel unit (Nakagawa: figure 3).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to “[reduce] processing time” (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 3**, Mukoyama teaches an image generation method for generating an image comprising:

storing object data in an object data storage section (Mukoyama: figure 1, numeral 102);

disposing a plurality of objects in an object space, based on the object data stored in the object data storage section (Mukoyama: figure 14);

controlling a virtual camera (Mukoyama: col. 8, lines 5-27)

disposing a model object having a plurality of part objects in the object space (Mukoyama: figure 15);

rotating each of the part objects based on rotational information of the virtual camera so that a display surface of each of the part objects on which an image is drawn is directed toward the virtual camera (Mukoyama: figure 16). Mukoyama does not teach storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section; mapping the Z texture stored in the texture storage section on each of the objects; generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing;

and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit.

Bothcy teaches generating an image viewed from the virtual camera in the object space while performing hidden surface removal processing (“Billboarding”: Bothcy: pgs. 3-4).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama reference to utilize hidden surface removal processing as suggested by Bothcy, to “achieve high-speed processing” (Bothcy: pgs. 3-4).

Nakagawa teaches storing a Z texture in which an offset value of a Z-value is set on each texel in a texture storage section (Nakagawa: paragraph [0139]); and mapping the Z texture stored in the texture storage section on each of the objects (Nakagawa: paragraph [0139]), and mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit (Nakagawa: figure 3; paragraph [0104] generate the image of the tree by mapping a plate-like polygon 310 onto a texture 320 for the tree which is a two dimensional representation of a three dimensional object).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Mukoyama with Bothcy combination to utilize texture as suggested by Nakagawa, to “[reduce] processing time” (Nakagawa: paragraph [0006]-[0007]).

Regarding **claim 4**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed



toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 5**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 6**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 7**, Mukoyama teaches disposing a column-shaped part object included in the model object so as to stand along a Y-axis, the Y-axis being an axis along a vertical direction (Mukoyama: figure 16); disposing each of the part objects at a position apart from a central axis of the column-shaped part object (Mukoyama: figure 15); and rotating each of the part objects about an X-axis which is perpendicular to the Y-axis so that the display surface of

each of the part objects is directed toward the virtual camera when the virtual camera rotates about the X-axis which is perpendicular to the Y-axis while being directed toward the column-shaped part object (Mukoyama: figure 15, 16).

Regarding **claim 8**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 9**, Mukoyama teaches wherein part objects include a first part object and a second part object, the first and second part objects being adjacent each other (Mukoyama: figure 14), the method further comprising: disposing the first and second part objects so as to overlap each other in a view image viewed from the virtual camera (Mukoyama: figure 14) or intersect each other even when the virtual camera rotates 360 degrees about a given coordinate axis.

Regarding **claim 11**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 10, the program causing a computer to implement processing (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 2 (the claim is rejected under the same combinations, teachings, and motivation as claim 2)

Regarding **claim 12**, Mukoyama teaches a computer readable medium embedded with a program for generating an image, the program causing a computer to implement processing

(“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 3 (the claim is rejected under the same combinations, teachings, and motivation as claim 3).

Regarding **claim 13**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 10, the program for generating an image, the program causing a computer to implement processing (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 4 (the claim is rejected under the same combinations, teachings, and motivation as claim 4).

Regarding **claim 14**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 12, the program causing a computer to implement processing (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 5 (the claim is rejected under the same combinations, teachings, and motivation as claim 5).

Regarding **claim 15**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 10, the program causing a computer to implement processing (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 6 (the claim is rejected under the same combinations, teachings, and motivation as claim 6).

Regarding **claim 16**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 12, the program causing a computer to implement processing (“provide a recording medium capable of providing a program wherewith the image processing

of the present invention is possible”; Mukoyama: col. 2, lines 47-50) the method of claim 7 (the claim is rejected under the same combinations, teachings, and motivation as claim 7).

Regarding **claim 17**, Mukoyama teaches a computer readable medium with the program as defined in claim 10, (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 8.

Regarding **claim 18**, Mukoyama teaches a computer readable medium embedded with the program as defined in claim 12, (“provide a recording medium capable of providing a program wherewith the image processing of the present invention is possible”; Mukoyama: col. 2, lines 47-50). The claim is rejected under the same combinations, teachings, and motivation as claim 9.

### ***Response to Arguments***

8. Applicant's arguments filed 11/07/07, in regards to **claims 1 and 10** have been fully considered but they are not persuasive. Applicant argues that the Mukoyama and Bothey do not teach “a plurality of part objects each of which has a projection shape, each of the part objects having a projecting portion formed on a display surface on which an image is drawn”. This argument is not considered persuasive since Mukoyama meets the limitations of the claim as mentioned above in the claim rejection of 1 and 10.

In regards to **claims 3 and 12**, applicant argues that the Mukoyama, Bothey, and Nakagawa do not teach “mapping on each of the part objects the Z texture for forming a virtual projection shape on the display surface of the part objects by pixel unit”. This argument is not

considered persuasive since the combination of references does meet the limitations of the claims and can be seen above in the rejection. Furthermore, the applicant argues that the Nakagawa does not teach the conversion of texture mapping to two dimensions. This argument is not persuasive since it can be seen in Nakagawa, figures 3-5, that the end product of the conversion is two dimensional. Also, claims 3 and 12 do not explicitly state a conversion from three dimensions to two, and therefore the argument in itself is not proper by the claim not incorporating the limitation.

In regards to **claims 2, 4-9, and 11-18**, applicant argues that the claims are patentable since the claims depend from independent claims 1, 3, 10, and 12. This argument is not considered persuasive since the rejections of claims 1, 3, 10, and 12 stand and can be seen above.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

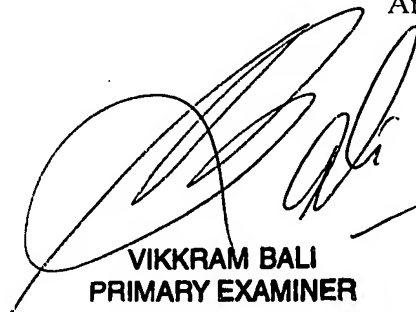
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward Park whose telephone number is (571) 270-1576. The examiner can normally be reached on M-F 10:30 - 20:00, (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on (571) 272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edward Park  
Examiner  
Art Unit 2624

/Edward Park/



VIKKRAM BALI  
PRIMARY EXAMINER